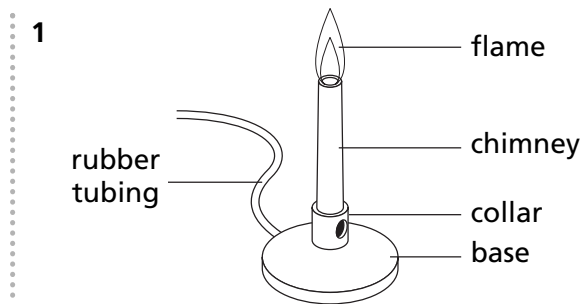


Worksheet answers

E1 The Bunsen burner



- 2 The Bunsen's flame is yellow.
- 3 Only when lighting the Bunsen or when it is left unattended.
- 4 This flame should be used for heating liquids.
- 5 The Bunsen's flame is blue.
- 6 This flame should be used for heating solids.

E3 Different fuels

- | | | | |
|-----------|---------------|-----------|------|
| 1 Butanol | 26°C and 24°C | 2 Butanol | 25°C |
| I.P.A. | 30°C and 28°C | I.P.A. | 29°C |
| Ethanol | 43°C and 43°C | Ethanol | 43°C |
| Hexanol | 13°C and 15°C | Hexanol | 14°C |
- 3 Repeating an experiment allows us to calculate an average result, minimising any errors that may have occurred.
 - 4 No, energy is lost to the surrounding as heat and light energy. Also not all the fuel burns completely. The soot is evidence of incomplete combustion of the fuel.
 - 5 More repeats, better insulation etc.

E4 Renewable sources of energy

- | | | | |
|------------|-------------|-----------|----------|
| 1 Oil | 2 Renewable | 3 Sea | 4 Land |
| 5 Turbines | 6 Storms | 7 Biomass | 8 Cells |
| 9 Petrol | 10 Steam | 11 Coal | 12 Water |

E5 Investigating solar cells

- 1 Measuring cylinder
- 2 To make it a fair test
- 3 To make it a fair test
- 4 (Pupil's own answer)
- 5 Solar cells should be made from black materials as it heats up more quickly (black surfaces are better at absorbing heat).

E7 Energy from foods

- | | |
|---------------|-------------|
| across | down |
| 3 thermometer | 1 potential |
| 5 fuels | 2 volume |
| 6 heat | 4 energy |

End of Unit test answers

- 1 joules/J (1)
- 2 stored/potential/chemical (1)
- 3 sound (1)
- 4 stored/potential/chemical (1)
- 5 a burn it (1)
- b stored/potential/chemical (1)
- c Sun (1)

- 6 a turn the collar to open the air hole (1)
b it is more easily seen/for safety reasons (1)
 - 7 10 (1)
Joules/J (another mark is awarded if the unit is used) (1)
 - 8 coal (1)
oil (1)
gas (1)
 - 9 solar (1)
wind (1)
wave (1)
 - 10 because it takes a long time to replace/it cannot be replaced once it is used (1)
 - 11 Oak leaves → worms → shrews → owls (3); arrows in wrong direction (1); any 2 in the correct order (1)
 - 12 a 15 000 kJ (1)
b 11 000 kJ (1)
c The athlete is more active and so needs more energy from his/her food. (2)
- Total marks: 25

Extension answers

- 13 a electrical (1)
b light/sound/heat (1)
 - 14 a x (1)
b z (1)
 - 15 switch off lights/walk to school/wear warmer clothes/don't use the car so much/use public transport/insulate our homes (2)
- Total marks for Extension: 6

Suggested levels for marks gained

- 8 – 12 working towards level 4
- 13 – 19 working towards level 5
- 20+ working towards level 6